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A strategic and welfare theoretic analysis of free trade areas

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Abstract

We construct a three-country model to determine how the formation of free trade areas (FTAs) affects optimal tariffs and welfare. We find that, at constant rest of the world (ROW) tariffs, the adoption of internal free trade induces union members to reduce their external tariffs below the Kemp–Wan [J. Int. Econom. 6 (1976) 95–97] level, and causes ROW's terms of trade to improve and its welfare to rise. When ROW also behaves optimally, its policy response to the formation of the FTA is to raise tariffs. Generally, FTA members prefer to liberalize internal trade partially and find regional integration appealing only if their collective size is sufficiently large. We also demonstrate how FTAs may undermine the attainment of global free trade.

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1. Introduction

A [World Trade Organization \(2000\)](#) report on preferential trade agreements identified 172 trade accords in force as of June 2000, with an additional 68 agreements under negotiation. Free trade areas (FTAs) accounted for 148 of the agreements in force and 67 of the agreements under negotiation. Yet, despite the overwhelming predominance of FTAs in practice, the theoretical literature on preferential trade arrangements (PTA) has tended to focus primarily on the analysis of customs unions³.

This paper takes a step toward redressing this imbalance in attention by providing new insights on the strategic aspects and welfare effects of FTAs. We use a simple three-country general-equilibrium trade model to analyze how the formation of an FTA between two countries affects the tariff and welfare levels of all trade partners. Since recent research on PTAs examines their effects under a variety of assumptions regarding the setting of inter-bloc tariffs and the structure of regional agreements, it is useful to place our analysis in the literature by highlighting two of our assumptions. First, we assume that external tariffs rates are endogenously determined with countries choosing these rates independently to maximize national welfare in a non-cooperative, single-period, tariff-setting game⁴. Second, we consider situations in which two exogenously chosen countries of equal size form an FTA. The fact that two of the three countries considered form an FTA means that the agreement expands the size of member states relative to the rest of the world (ROW). This enables us to identify the strategic effects of tariff cuts within the FTA and obtain sharp predictions on how its relative size is likely to affect the costs and benefits of regional integration. We adopt the assumption of symmetric FTA members for tractability and because it places the relative size of trading blocs at center stage while abstracting from internal distributional issues within the FTA⁵.

In evaluating the effects of FTAs, one of the theoretical difficulties is that tariff changes are discrete. Typically, in such settings, one is concerned with how pre- and post-integration Nash tariff equilibria compare. However, because this comparison involves discrete changes in tariffs, the use of traditional calculus-based methods is difficult. We overcome this problem by decomposing the entire change into two separate steps. We first

³ The theoretical literature on regional trade agreements is now 50 years old. Beginning with [Viner \(1950\)](#), [Meade \(1955\)](#) and [Lipsey \(1970\)](#), and continuing with the modern contributions by [Riezman \(1979\)](#), [Kennan and Riezman \(1990\)](#), [Krugman \(1991\)](#), [Bond and Syropoulos \(1996a\)](#), [Syropoulos \(1999\)](#) and others, this literature has primarily focused on customs unions.

⁴ A number of authors have examined this question under alternative assumptions regarding both the objective functions of policymakers and the nature of the tariff-setting game between them. For example, [Bagwell and Staiger \(1997\)](#) and [Bond and Syropoulos \(1996b\)](#) assume that inter-bloc tariffs are the outcome of a repeated game between the trading blocs. [Richardson \(1993\)](#) examines the case in which the objective function of the bloc members attaches a positive weight to special interests. See [Baldwin and Venables \(1995\)](#) for a survey of the recent literature on regional economic integration.

⁵ The importance of the relative size of a trading bloc has been extensively examined for the case of customs unions, but is relatively unexplored in the case of FTAs. [Kennan and Riezman \(1990\)](#) numerically studied the role of country size in regional trading arrangements. [Krugman \(1991\)](#) divided the world into an equal number of customs unions to explore the effects of simultaneously expanding the (absolute) size of all CUs. The role of relative versus absolute size in many country models of CUs is emphasized by [Bond and Syropoulos \(1996a\)](#). [Kose and Riezman \(2000\)](#) presented some additional numerical results for CUs and FTAs.

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